

We Claim:

1. An apparatus for delivering a prosthesis comprising
  - a catheter sized and configured for introduction into a hollow body organ or blood vessel, the catheter having a distal end,
  - a carrier on the distal end sized and configured to carry the prosthesis during introduction of the catheter,
  - a release mechanism on the distal end being operable to retain the prosthesis on the carrier, the release mechanism also being operable to selectively release the prosthesis from the carrier for deployment in the hollow body organ or blood vessel,
  - an enclosure mechanism on the distal end being operable to enclose the prosthesis on the carrier, the enclosure mechanism also being operable to selectively expose the prosthesis on the carrier, to thereby enable the release of the prosthesis from the carrier in response to selective operation of the release mechanism, and
  - at least one actuator coupled to the release mechanism and the enclosure mechanism to selectively operate the release mechanism and the enclosure mechanism.
2. An apparatus according to claim 1 wherein the at least one actuator includes a first actuator coupled to the release mechanism and a second actuator coupled to the enclosure mechanism.
3. An apparatus according to claim 2 wherein the catheter includes a proximal end and a handle on the proximal end, and wherein the at least one actuator is carried by the handle.
4. An apparatus according to claim 1

wherein the release mechanism includes a fastening member releasably securing the prosthesis to the carrier.

5           5.     An apparatus according to claim 4  
              wherein the fastening member comprises a wire.

              6.     An apparatus according to claim 1  
              wherein the enclosure mechanism includes a sheath movable in a distal direction along the distal end to cover and enclose the prosthesis and in a proximal  
10           direction along the distal end to uncover and expose the prosthesis.

              7.     An apparatus according to claim 1  
              wherein the catheter includes a lumen that accommodates passage of a guide wire.

15           8.     A method for deploying an endovascular prosthesis comprising the steps of

              (i) providing an apparatus as defined in claim 1 or 2 or 3 or 4 or 5 or 6 or 7,

              (ii) operating the release mechanism to retain  
20           the prosthesis on the carrier,

              (iii) operating the enclosure mechanism to enclose the prosthesis on the carrier

              (iv) after steps (ii) and (iii) introducing the catheter into a hollow body organ or blood vessel,  
25           and

              (v) after step (iv), operating the enclosure mechanism and the release mechanism to expose and release the prosthesis from the carrier.

              9.     A method according to claim 8  
30           wherein step (v) comprises operating the enclosure mechanism and the release mechanism separately.

              10.    A method according to claim 8  
              further including the step of fastening the prosthesis to body tissue.

35           11.    A system comprising

a prosthesis sized and configured for deployment in a hollow body organ or a blood vessel, and an apparatus as defined in claim 1 or 2 or 3 or 4 or 5 or 6 or 7 for delivering the prosthesis.

5           12. A system according to claim 11 wherein the prosthesis comprises a stent structure.

          13. A system according to claim 11 wherein the prosthesis comprises a malleable  
10 stent structure.

          14. A system according to claim 11 wherein the prosthesis comprises a self-expanding stent structure.

          15. A system according to claim 11  
15 wherein a region of the prosthesis is sized and configured to receive a fastening element to secure the prosthesis to body tissue.